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IMPact@SUTD is a regular update featuring works by SUTD Faculty, Researchers, Students and Research Centres/Labs. We hope to create awareness of the Research by SUTD within the SUTD community and beyond. Share with us your SUTD works today so that we can include it in our next update.

Biophysical phenotyping of single cells using a differential multiconstriction microfluidic device with self-aligned 3D electrodes
Biosensors and Bioelectronics

SUTD Author: Dahou Yang, Yinning Zhou and Ye Ai

"We have developed a high-throughput microfluidic biophysical phenotyping technique that is able to simultaneously characterize the deformability, electrical impedance and relaxation index of single cells. With the use of a trained neural network, this technique enables highly accurately classification of different cell types with accuracy as high as 93.3%."

--- Ye Ai

Optimal network topology for responsive collective behavior
Science Advances

SUTD Author: David Mateo, Nikolaj Horsevad, Vahid Hassani, Mohammadreza Chamanbaz and Roland Bouffanais

"To investigate the influence of the network topology on collective response, a model of distributed decision-making was used to study the capacity of the system to follow a driving signal for varying topologies and system sizes. Swarm robotics experiments reveal a nontrivial relationship between frequency and optimal network topology."

--- Roland Bouffanais

Rhodamine-naphthalimide demonstrated a distinct aggregation-induced emission mechanism: elimination of dark-states via dimer interactions (EDDI)
Chemical Communications

SUTD Author: Lu Huang and Xiaogang Liu

"In collaborations with scientists from Chinese Academy of Sciences, we have discovered a distinct mechanism to enable aggregation-induced emission (AIE) in rigid fluorophores, by the elimination of dark-states via dimer interactions (EDDI). This discovery paves a new avenue for developing functional AIE materials."

--- Xiaogang Liu

A computational design framework for two-layered elastic stamps in nanoimprint lithography and microcontact printing
Journal of Applied Physics
SUTD Author: Richard O'Rorke

A game-theoretic learning approach to QoE-driven resource allocation scheme in 5G-enabled IoT
Eurasip Journal on Wireless Communications and Networking
SUTD Author: Haiyang Zhang

Anomalous spatial shifts in interface electronic scattering
Frontiers of Physics
SUTD Author: Zhi-Ming Yu, Ying Liu and Shengyuan A. Yang

Anonymous Communications for Secure Device-to-Device Aided Fog Computing
IEEE Consumer Electronics Magazine
SUTD Author: Tony Q.S. Quek

Deep Learning framework for Wireless Systems: Applications to Optical Wireless Communications
IEEE Communications Magazine
SUTD Author: Hoon Lee and Tony Q. S. Quek

Heat current rectification in segmented XXZ chains
Physical Review E
SUTD Author: Vinitha Balachandran and Dario Poletti

Novel non-linear demapper for soft decision decoder of LDPC codes in impulsive noise
IET Communications
SUTD Author: Zhen Mei

Programmable Hierarchical C-RAN: From Task Scheduling to Resource Allocation
IEEE Transactions on Wireless Communications
SUTD Author: Tony Q. S. Quek

Quadratic and cubic nodal lines stabilized by crystalline symmetry
Physical Review B
SUTD Author: Zhi-Ming Yu, Weikang Wu, Xian-Lei Sheng, and Shengyuan A. Yang

Supervisory Energy-Management Systems for Microgrids Modeling and Formal Verification
IEEE Industrial Electronics Magazine
SUTD Author: Gayathri Sugumar

Terahertz-optical intensity grating for creating high-charge, attosecond electron bunches
New Journal of Physics
SUTD Author: Jeremy Lim

"Science is a way of thinking much more than it is a body of knowledge."
– Carl Sagan

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